

salis: (No distinction noted from the other tribe, Nemeobiini.)

Subfamily LYCAENINAE.

Butterfly: Labial palpi well developed, porrect, half or more of the middle joint surpassing the face. Fore wings with excessively brief, hardly perceptible internal nervure; hind wings channeled on basal half to receive the abdomen, without precostal nervure, the costal nervure running nearly to the end of costal margin. Fore tarsi of ♂ armed abundantly beneath and at tip with spines. Generally unspotted and without bars above. *Egg*: No converging septae in the foveolae. *Caterpillar at birth*: Body with chitinous dorsal shields

of greater or less extent and distinctness only on the first thoracic and last dorsal segments; no substigmatal indurated shields; series of chitinous annuli on the sides of the body. *Mature caterpillar*: Body with rare exceptions (Feniseca) distinctly onisciform; head relatively small, being less, generally far less, than half as broad as the middle of the body, usually completely, always at least partially retractile within the segment behind it. *Chrysalis*: Short, plump, rounded, and nowhere (except in Feniseca) angulate, the abdomen rounded and falling rapidly behind, (excepting in Feniseca) without protuberant cremaster; body sparsely or densely clothed with short hairs or other dermal appendages.

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XXXVII.

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Deilinia carnearia Hulst. The ♀ type is in the National Museum. A female before me from which eggs were obtained, is not like the type, the ground color of fore wings being ashen, the lines thicker and more diffuse, the one through the discal dot wanting; terminal gray space more angularly bent and edged within with blackish and carneous. An exact mate to it (♀) is in the Museum, bred on *Ceanothus* in California by Mr. A. Koebele. Others of Koebele's specimens, of which hardly two are alike, are nearer Hulst's type and one ♂ matches it, except that the terminal gray shade is obsolete. I collected an equally variable series of moths with the ♀ that laid the eggs. *D. falcataria* Pack. and *D. perpallidaria* Grote are probably

only varieties of this species; if so, the species must be called *falcataria*. But I have not examined the other types.

Egg.—Elliptical, one end strongly depressed, wedge shaped, the sides narrow but not flattened; micropylar end roundly truncate. About 18 longitudinal, parallel lines, stopping sharply at the edge of the truncation, a little confused at the other end; slightly waved, narrow, raised, joined by neat cross lines, similar, forming transversely elongate parallelograms, alternating in successive rows. Fine pores at the joinings of these reticulations. Green, turning sordid crimson. Size .8 × .6 × .4 mm. Hatched in six days.

Stage I.—Head round, not bilobed, mouth

pointed; dark brown, not shining, the sutures of the moderate clypeus a trace darker; a pale speck covering epistoma; width .3 mm. Body moderate, normal, cylindrical, smooth. Sordid whitish, becoming green from the food; a dorsal brown stripe, moderately dark and a series of vinous brown connected subventral blotches, forming a line on joints 2-4 and 10-13. Traces of subdorsal and stigmatal paler lines and faint, pale streaking in the lateral space between. Tubercles minute, black; setae rather long, black, not distinctly capitate. Abdominal feet reddish shaded.

Stage II.—Head rounded bilobed, flattish before, spotted thickly with white over the face, but all of vertex and sides of lobes dark brown; width .5 mm. Body cylindrical, rather short and thick, smooth, normal. Tubercles moderate, but setae bristly, black, distinct. Dorsum dark purple-brown, cut by whitish on joint 2 at sides; sides white with two broad, diffuse, dark brown bands, a little dotted, wider than the whitish spaces. Venter broadly dark with narrow subventral and medio-ventral white lines, the latter segmentarily maculate in dark brown. Feet pale lined.

The larvae were unfortunately lost at this point. Others, collected on *Ceanothus* at the same place appeared as follows:—

Stage III.—Head rounded bilobed, flattened before, erect; whitish, heavily mottled in brown-black, forming large confluent patches at vertex and sides, leaving the face pale with only a few dark marks; width 8. mm. body marked much as in *Endropia duaria*, stage I (*Psyche* vol. 9, p. 371) so that the larva was at first mistaken for that species.

Stage IV.—Head as before, somewhat thick and disk-like; greenish white, vertex and sides with brown, transversely strigose mottlings, forming a border about the face; width 1.3 mm. Body robust, moderate, smooth; olivaceous-green; addorsal and subdorsal lines white, darker edged, joined by intersegmental white blotches between 5-6 to 7-8; lateral line white, similarly blotched to the diffuse, yellow, substigmatal line. Venter similarly white lined; a series of large, purple-brown, segmentary, subventral blotches. Feet purplish washed; no shields. Tubercles and setae small, black, inconspicuous.

This delicate larva was lost like the former ones, but another was collected at the same place.

Stage V.—Head as before, but the strigose brown markings are pale; width 2.1 mm. Body as before but all white shaded, the stigmatal line concolorous with the others and all the lines but a little whiter than the body. Segmentary subventral blotches on joints 2 to 9, partly pale brown, partly dark. Feet brown shaded; spiracles brown. Tubercles and setae as before.

Larvae on *Ceanothus* on the foothills back of Golden, Colorado, collected in July. Moths collected at the same place showed considerable variability, as noted above. One of them is scarcely distinguishable from *D. bifilata* Hulst, and I can construct a good series of specimens leading to this species from the moth that laid the eggs. *D. bifilata* is, therefore, probably only another variety of this variable species.

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